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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/404,292	09/23/1999	KENNETH LEE LEVY	LEVY/R	8259

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EXAMINER
KIM, CHONG R

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

●	Application No. ●	Applicant(s)
Office Action Summary	09/404,292	LEVY, KENNETH LEE
	Examiner	Art Unit
	Charles Kim	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25,26,29 and 32-51* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25,26,29 and 32-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *16*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on January 26, 2004 has been entered.

Response to Amendment and Arguments

2.   Applicant's amendment filed on February 10, 2004 has been entered and made of record.

3.   In view of applicant's amendment, the 112 second paragraph rejections are withdrawn.

4.   Applicant's arguments have been fully considered, but they are not deemed to be

persuasive for at least the following reasons.

Applicants state (page 8) that the "112 rejection with respect to claim 25's recitation of

'combined data' is respectfully traversed". Applicants provide Fig. 10A and page 10, lines 10-

15 as support for the limitation. The Examiner notes that figure 10A discloses the steps:

"retrieve auxiliary information, compress data, re-embed auxiliary information in compressed

data". The Examiner further notes that page 10, lines 10-15 disclose the steps of how the

auxiliary information is retrieved from the data. Therefore, in view of figure 10A and the cited

portion of the applicant's specification, the position of the Office remains that the applicant's

specification is non-enabling in regards to the limitation of "compressing the combined data".

The Examiner notes that the "combined data" in claim 25 is defined as "the non-compressed form including the auxiliary information" (lines 4-5). The Examiner was unable to find an instance in the applicant's specification that provides enabling support for compressing the non-compressed form including the auxiliary information.

5.   Applicant's arguments with respect to the art based rejections for claims 25, 26, 33, 37, 40, 51 have been considered and are addressed in the art rejections below.

Claim Objections

6.   Claim 51 is objected to because of typographical errors. It appears that the applicant intended the limitation "(b)" in line 8 to read "(c)". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7.   Claims 25, 29 and 36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claim 25, the limitations "compressing the **combined** data" in line 8, and "embedding the auxiliary information in the compressed **combined** data, whereby the

compressed combined data comprises the auxiliary information embedded therein" in lines 9-11 are non-enabling because there is no sufficient support in the specification. The Examiner notes that the "combined data" in claim 25 is defined as "the non-compressed form including the auxiliary information" (lines 4-5). The Examiner was unable to find an instance in the applicant's specification that provides enabling support for compressing the non-compressed form including the auxiliary information, and embedding the auxiliary information in the compressed combined data.

Referring to claim 36, the phrase "the data signal includes the auxiliary information embedded therein during said compressing step" is not supported by the specification. The Examiner was unable to find enabling support for compressing the data signal that includes the auxiliary information embedded therein.

Claims not mentioned specifically depend from non-enabling antecedent claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8.   Claims 25, 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 25, the phrase "the embedded data initially comprising...wherein the combined data comprises..." in lines 2-5 renders the claim indefinite because it is unclear what the difference is between the "embedded data" and the "combined data". At first glance, it

appears that the difference is that the "embedded data" comprises auxiliary information

embedded therein, while the "combined data" comprises auxiliary information that is included.

However, lines 9-10 recite "whereby the compressed combined data comprises the auxiliary

information embedded therein", implying that the "combined data" also comprises the auxiliary

information embedded therein. Therefore, the claim is considered indefinite because it is unclear

what the difference is between the "embedded data" and the "combined data".

Claims not mentioned specifically depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

9.   Claim 25, 29, 33-36, 40-50 are rejected under 35 U.S.C. 103(a) as being unpatentable

over the combination of the article entitled "Digital Watermarking of Raw and Compressed

Video" by Hartung et al. ("Hartung"), and Nakano et al., U.S. Patent No. 6,298,142 ("Nakano").

Referring to claim 25 as best understood, Hartung discloses a method of embedding

auxiliary information in data, wherein the auxiliary information is not lost with compression of

the embedded data (page 6, part e under "ATTACKS AGAINST WATERMARKS, AND

REMEDIES. Hartung explains that the watermark should be robust against being removed or

destroyed due to compression), the embedded data initially comprising a non-compressed form

including the auxiliary information embedded therein, and wherein the combined data comprises

the non-compressed form including the auxiliary information, the method comprising:

    a.   retrieving the auxiliary information from the combined data (page 3, third line

from the bottom. It is noted that recovering the hidden information is interpreted as being

analogous to retrieving the auxiliary information. Hartung also discloses that the auxiliary

information has been inserted into the non-compressed data in an initial step),

    b.   compressing the combined data [page 4, Hartung discloses compressing video

data into MPEG format, and page 6, part e under the section "ATTACKS AGAINST

WATERMARKS, AND REMEDIES, Hartung explains that the watermarked (combined) data is

compressed].

    Hartung further discloses the step of embedding the auxiliary information in compressed

data, (page 4. Hartung teaches embedding watermark data into compressed MPEG data), but

does not explicitly disclose that the auxiliary information is embedded in the compressed

combined data. However, the Examiner notes that this would have been an obvious feature in

Hartung for at least the following reasons:

    It was exceedingly well known in the art that compressing data which contains

watermark information resulted in the lost of the watermark information. For example, Nakano

explains that compressing data that contains auxiliary (watermark) information results in the lost

of the auxiliary (watermark) information due to the compression process (Nakano, col. 2, lines

42-49). Therefore, compressing the combined data (step b) as taught by Hartung, results in the

auxiliary information being lost.

The Examiner notes that robustness, which is defined as the resistance against a watermark data being lost, is considered an inherent feature of a watermark (because a watermark that can be removed will defeat the purpose of embedding the watermark). Therefore, it would have been obvious and desirable to embed the auxiliary information in the compressed combined data, in order make sure that the data in compressed form contains the same auxiliary information as the original un-compressed data, and to further ensure that the data (either in compressed or non-compressed form) always contains the auxiliary information for complete protection against unauthorized use (Hartung, page 1 under the Introduction).

Referring to claim 29, Hartung further discloses that the compression comprises encoding (page 4. As described above, Hartung discloses compressed video data in MPEG format. It is noted that MPEG data is a form of encoded video data).

Referring to claim 33, Hartung discloses a method comprising:

a.   retrieving auxiliary information from a data signal, wherein the auxiliary information is encoded in the data signal, and wherein the auxiliary information is retrieved from the data signal while the data signal comprises a non-compressed form (page 3, third line from the bottom. It is noted that recovering the hidden information is interpreted as being analogous to retrieving the auxiliary information)

b.   compressing the data signal [page 4, Hartung discloses compressing video data into MPEG format, and page 6, part e under "ATTACKS AGAINST WATERMARKS, AND REMEDIES, Hartung explains that the data signal is compressed].

Hartung further discloses the step of embedding the retrieved auxiliary information in the compressed data signal, but does not explicitly disclose embedding the **retrieved** auxiliary

information in the compressed data signal. However, the Examiner notes that this would have been an obvious feature in Hartung for at least the following reasons:

It was exceedingly well known in the art that compressing data that contains watermark information resulted in the lost of the watermark information. For example, Nakano explains that compressing data that contains auxiliary (watermark) information results in the lost of the auxiliary (watermark) information due to the compression process (Nakano, col. 2, lines 42-49). Therefore, compressing the data signal (step b) as taught by Hartung, results in the auxiliary information being lost.

The Examiner notes that robustness, which is defined as the resistance against a watermark data being lost, is considered an inherent feature of the watermark (because a watermark that can be removed will defeat the purpose of embedding the watermark). Therefore, it would have been obvious and desirable to embed the retrieved auxiliary information in the compressed data signal, in order make sure that the data in compressed form contains the same auxiliary information as the original un-compressed data, and to further ensure that the data (either in compressed or non-compressed form) always contains the auxiliary information for complete protection against unauthorized use (Hartung, page 1 under the Introduction).

Referring to claim 34, Hartung further discloses that the auxiliary information is steganographically retrieved from the non-compressed data signal (page 3. It is noted that the recovery of hidden information as disclosed by Hartung, meets the limitation of steganographically retrieving the information, as disclosed in the claim, since the applicant states that "in steganography, a message is hidden within another object or media" on page 2, line 29-30 of the specification).

Referring to claim 35, Hartung further discloses that the auxiliary information is embedded in the compressed data signal in the form of a steganographic watermark (page 4).

Referring to claim 36, Hartung further discloses that the data signal includes the auxiliary information embedded during the compressing step [page 4, Hartung discloses compressing video data into MPEG format, and page 6, part e under "ATTACKS AGAINST WATERMARKS, AND REMEDIES, Hartung explains that the data signal including the embedded auxiliary information s compressed].

Referring to claim 40, Hartung discloses a method comprising:

a.   retrieving auxiliary information from an original data signal, wherein the auxiliary information is encoded in the original data signal (page 3, third line from the bottom. It is noted that recovering the hidden information is interpreted as being analogous to retrieving the auxiliary information. Hartung also discloses that the auxiliary information has been encoded in the non-compressed data in an initial step)

b.   performing a transformation on the original data signal to create a transformed data signal (page 4. It is noted that the compression of video data to a MPEG format, as disclosed by Hartung, inherently includes a transformation of the original data, for example, DCT is defined as a transformation).

Hartung does not explicitly disclose the step of embedding the retrieved auxiliary information in the transformed data signal. However, the Examiner notes that this would have been an obvious feature in Hartung for at least the following reasons:

It was exceedingly well known in the art that compressing data that contains watermark information resulted in the lost of the watermark information. For example, Nakano explains

that compressing data that contains auxiliary (watermark) information results in the lost of the

auxiliary (watermark) information due to the compression process (Nakano, col. 2, lines 42-49).

Therefore, transforming (compressing) the data signal (step b) as taught by Hartung, results in

the auxiliary information being lost.

The Examiner notes that robustness, which is defined as the resistance against a

watermark data being lost, is considered an inherent feature of the watermark (because a

watermark that can be removed will defeat the purpose of embedding the watermark).

Therefore, it would have been obvious and desirable to embed the retrieved auxiliary information

in the transformed data signal, in order make sure that the data in compressed (transformed) form

contains the same auxiliary information as the original un-compressed data, and to further ensure

that the data (either in compressed or non-compressed form) always contains the auxiliary

information for complete protection against unauthorized use (Hartung, page 1 under the

Introduction).

Referring to claim 41, see the rejection of at least claim 34 above.

Referring to claims 42 and 43, see the rejection of at least claim 35 above.

Referring to claim 44, Hartung fails to explicitly state that the transformation causes the

auxiliary information not to be detectable from the transformed data signal. However, since the

auxiliary information disclosed by Hartung is a digital watermark that should be invisible (page

3, line 1), it would have been obvious for the auxiliary information not to be detectable as a

result of the transformation.

Referring to claim 45, see the rejection of at least claim 41 above.

Referring to claims 46 and 47, see the rejection of at least claim 42 above.

Referring to claim 48, Hartung further discloses that the embedding of the retrieved

auxiliary information in the transformed data signal uses a robust embedding method for the

transformed data signal (page 6, section 5 titled "Attacks against Watermarks, and Remedies")

that enables detection of the auxiliary information by a detector (page 3, lines 14-15).

Referring to claim 49, see the rejection of at least claim 42 above.

Referring to claim 50, see the rejection of at least claim 41 above.

10.   Claims 26, 30, 32, 37-39 and 51 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the article entitled "Digital Watermarking of Raw and Compressed Video" by

Hartung et al. ("Hartung").

Referring to claim 26, Hartung discloses a method of embedding auxiliary information in

data, wherein the auxiliary information is not lost with decompression of the data from a

compressed form to a non-compressed form, and wherein the compressed form of the data

includes the auxiliary information, the method comprising:

a.   retrieving the auxiliary information from the compressed form of the data (page 3,

paragraph above section 3. Hartung discloses a watermark detector for compressed video)

b.   decompressing the compressed form to yield the non-compressed form of the data

[pages 6-7. Hartung explains that the input MPEG-2 bitstream (compressed form) is decoded

(decompressed)]

c.   steganographically embedding the auxiliary information in non-compressed form,

whereby the non-compressed form of the data comprises the auxiliary information embedded

therein (page 7, above figure 4. Hartung explains that the watermark is embedded in the non-compressed data).

Hartung discloses watermarking techniques for compressed data (step a) and non-compressed data (steps b and c), but does not explictly combine steps a, b, and c into a single method. However, Hartung explains that the watermarking algorithm works interoperable and is fully compatible for both compressed and uncompressed data (page 8). Therefore, it would have been obvious to combine Hartung's watermarking technique for compressed data (step a) with his watermarking technique for non-compressed data (steps b and c), in order to provide a flexible watermarking algorithm that can embed auxiliary information in both compressed and non-compressed data, and provide robustness against attacks attempting to remove the watermark, and to further ensure that the data (either in compressed or non-compressed form) always contains the auxiliary information for complete protection against unauthorized use (page 1, under the Introduction).

Referring to claim 32, Hartung further discloses that the decompressing comprises decoding (bottom of page 6).

Referring to claim 37, Hartung discloses a method comprising:

a.   retrieving auxiliary information from a data signal, wherein the auxiliary information is encoded in the data signal, and wherein the auxiliary information is retrieved from the data signal while the data signal comprises a compressed form (page 3. Hartung discloses a watermark detector for compressed video)

b.   decompressing the compressed data signal to yield a de-compressed data signal

[pages 6-7. Hartung explains that the input MPEG-2 bitstream (compressed form) is decoded

(decompressed)].

Hartung further discloses the step of embedding the auxiliary information in the de-

compressed data signal (page 7, above figure 4. Hartung explains that the watermark is

embedded in the non-compressed data), but does not explicitly disclose embedding the **retrieved**

auxiliary information. However, the Examiner notes that it would have been obvious and

desirable to embed the retrieved auxiliary information in the de-compressed data signal, in order

make sure that the data in de-compressed form contains the same auxiliary information as the

data in compressed form, and to further ensure that the data (either in compressed or non-

compressed form) always contains the auxiliary information for complete protection against

unauthorized use (Hartung, page 1 under the Introduction).

Referring to claim 38, Hartung further discloses that the auxiliary information is

steganographically encoded in the de-compressed data signal (page 7, above figure 4. Hartung

explains that the watermark is steganographically encoded in the de-compressed data).

Referring to claim 39, see the rejection of at least claim 38 above.

Referring to claim 51, Hartung discloses a method of embedding auxiliary information in

data in which the auxiliary information is not lost with decompression of the data from a

compressed form to a non-compressed form, wherein the compressed form includes the auxiliary

information, the method comprising:

a.   retrieving the auxiliary information from the compressed form (page 3, paragraph

above section 3. Hartung discloses a watermark detector for compressed video)

b.   decompressing the compressed form to yield the non-compressed form [pages 6-

7. Hartung explains that the input MPEG-2 bitstream (compressed form) is decoded

(decompressed)]

c.   embedding the auxiliary information in non-compressed form, wherein the non-

compressed form of the data comprises the auxiliary information embedded therein, and wherein

the non-compressed form including the auxiliary information embedded therein comprises digital

data (page 7, above figure 4. Hartung explains that the watermark is embedded in the non-

compressed digital data).

Hartung discloses watermarking techniques for compressed data (step a) and non-

compressed data (steps b and c). However, Hartung does not explictly combine steps a, b, and c

into a single method. Hartung explains that the watermarking algorithm works interoperable and

is fully compatible for both compressed and uncompressed data (page 8). Therefore, it would

have been obvious to combine Hartung's watermarking technique for compressed data (step a)

with his watermarking technique for non-compressed data (steps b and c), in order to provide a

flexible watermarking algorithm that can embed auxiliary information in both compressed and

non-compressed data, and provide robustness against attacks attempting to remove the

watermark, and to further ensure that the data (either in compressed or non-compressed form)

always contains the auxiliary information for complete protection against unauthorized use (page

1, under the Introduction).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck
February 24, 2004

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